

loan support chatbot for the Smart Bank

Introduction:

- The objective of this project was to develop a loan support system to assist customers with inquiries about their eligibility for loans and to provide information about the loan application process. This report outlines the approach taken, challenges faced, insights gained from model evaluation, and suggestions for improving the model's performance.

Approach:

- First extract data from source
- Split data into chunks - in order to answer user's query we don't need to look at the entire document rather need to look at only certain parts of it
- Computing embeddings for each chunk - vector representation of the texts. all of these embeddings are going to be stored in vector database(knowledge base)
- When the user makes a query we need to compute an embedding for the query.
- Extract relevant information from knowledge base in order to answer the query.
- Result is passed to LLM and it generates response to the user.

Challenges:

- Choosing LLM (because in order to get services from most LLMs ,we have to pay money)
- Handling Natural Language Understanding (NLU) Challenges:
Understanding and interpreting natural language input from users accurately can be challenging, especially considering variations in language, syntax, and intent.
Developing robust natural language understanding (NLU) capabilities to accurately process user queries is essential for the chatbot's effectiveness.

- Complexity of Loan Eligibility Criteria:

Loan eligibility criteria can be complex and may vary depending on factors such as income, credit history, employment status, and debt-to-income ratio. Incorporating all these factors into the chatbot's decision-making process accurately can be challenging.

Insight:

- **Customer Education:** Many customers may not fully understand the loan application process or the factors that determine their eligibility for loans.
- **Compliance and Risk Management:** Ensuring that the chatbot complies with regulatory requirements and follows responsible lending practices is crucial.
- **Data Security:** Protecting customer data is paramount.

Suggestions for Improving Model Performance:

- **Data Augmentation:** Augmenting your training data with additional examples can help the model learn from a more diverse range of inputs and improve its ability to generalize to new scenarios.
- **Fine-Tuning:** Fine-tuning your model on domain-specific data related to loans and banking can improve its understanding of relevant concepts and terminology, leading to more accurate responses.
- **Feedback Loop:** Implement a feedback loop mechanism that allows users to provide feedback on the quality of the chatbot's responses. This feedback can be used to continuously update and improve the model over time.

Conclusion:

Throughout the development process, it's essential to prioritize accuracy, compliance, and user experience. Ensuring that the chatbot accurately assesses loan eligibility, provides up-to-date information, and complies with regulatory requirements is crucial for building trust with users and maintaining credibility.